

## CLAIMS

What is claimed is:

1. A computer based system for testing the cognitive performance of at least one examinee comprising:
  - at least one source network entity (SNE) having machine readable instructions, at least one test development system, local memory, and a plurality of executable files stored in said memory;
  - a data distribution system (DDS) logically connected to said source network entity;
  - at least one destination network entity (DNE) logically connected to said data distribution system wherein said DNE has local memory;
  - (b) generating a computer signal train comprising said at least one set of instructions, said at least one test development system and said plurality of executable files and transmitting said computer signal train to said data distribution system;
  - (c) embodying said computer signal train in a carrier wave using said data distribution system;
  - (d) distributing said carrier wave embodying said computer signal train to said destination network entity;
  - (e) displaying general and motivational instructions to said examinee;

2. A computer based system for testing the cognitive performance of at least one examinee, according to claim 1, wherein said source network entity comprises:
  - means for generating a computer readable signal train comprising said at least one set of instructions, said at least one test development system and said plurality of executable files; and
  - means for transmitting said computer readable signal train to said data distribution system.

1 3. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said data distribution system comprises means for  
3 generating a carrier wave embodying said computer readable signal.

1 4. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said receiving network entity comprises a  
3 computational device further comprising;  
4 means to receive and decode said carrier wave, and  
5 means to execute said test development system.

1 5. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said at least one TDS comprises:  
3 at least one set of operating instructions;  
4 a destination network entity calibration system;  
5 an examinee motivation system;  
6 a keystroke analysis system;  
7 an examinee monitoring system; and  
8 a health and performance optimization system.

1 6. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said source network entity and said destination  
3 network entity comprise the same device.

1 7. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said source network entity comprises a network  
3 server computer.

1 8. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said destination network entity comprises a PC or  
3 workstation computer.

1 9. A computer based system for testing the cognitive performance of at least one  
2 examinee, according to claim 1, wherein said data distribution system comprises internet  
3 means.

1 10. A computer based method for testing the cognitive performance of at least one  
2 examinee, said method comprising the steps of:

3 (a) providing a computer based testing system comprising:

4 at least one source network entity having machine readable instructions, at least  
5 one test development system, local memory, and a plurality of executable files stored in said  
6 memory;

7 at least one data distribution system logically connected to said source network entity;  
8 at least one destination network entity (DNE) logically connected to said data  
9 distribution system, wherein said DNE has local memory;

10 (b) generating a computer readable signal train comprising said at least one set of  
11 instructions, said at least one test development system and said plurality of executable files and  
12 transmitting said computer signal train to said data distribution system;

13 (c) embodying said computer readable signal train in a carrier wave using said data  
14 distribution system;

15 (d) distributing said carrier wave embodying said computer readable signal train to said  
16 destination network entity; and

17 (e) performing said test development system by said DNE.

1 11. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 10, wherein said test development system comprises;

3 means for displaying general and motivational instructions to said at least one  
4 examinee;  
5 means for gathering information from said at least on examinee;  
6 means for calibrating said DNE;  
7 means for data caching;  
8 means for generating and displaying random challenge signals;  
9 means for measuring cognitive performance;  
10 means for providing feedback to said at least one examinee; and  
11 means for capturing examinee keystrokes.

1 12. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 10, wherein performing said test development system comprises  
3 the steps of:

- 4 (a) displaying general and motivational instructions to said examinee;  
5 (b) obtaining information relating to examinee health history and caching said  
6 information in DNE memory;  
7 (f) calibrating said destination network entity;  
8 (g) generating and displaying at least one challenge signal;  
9 (h) capturing examinee keystrokes using said keystroke capture means;  
10 (h) measuring examinee cognitive performance using said measurement means;  
11 wherein said measurement is bounded by pre-determined error limits;  
12 (i) providing performance feedback to said examinee;  
13 (j) providing motivational feedback to said examinee; and  
14 (k) providing summary information to said examinee.  
15

1 13. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein calibrating said DNE comprises the steps of:

- 3 (a) recording a first time stamp;

4 (b) pausing for a pre-determined delay time;  
5 (c) recording a second time stamp after said pre-determined delay;  
6 (d) determining the actual delay time;  
7 (e) retrieving from said DNE memory an interference threshold;  
8 (f) displaying an error message where the percentage by which the actual delay differs  
9 from the pre-determined delay exceeds said interference threshold.

1 14. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein displaying a challenge signal comprises the steps of:

- 3 (a) selecting a random challenge signal;  
4 (b) softshifting said challenge signal;  
5 (c) storing said challenge signal in DNE memory;  
6 (d) displaying said softshifted signal to said examinee; and  
7 (e) storing time of display of said

1 15. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein performing said keystroke capture routine comprises  
3 the steps of:

- 4 (a) capturing at least a first keystroke;  
5 (b) determining whether said first keystroke is a command and executing said  
6 command;  
7 (c) determining whether the elapsed time between said signal-display and the time of  
8 said first keystroke exceeds a pre-determined limit; and  
9 (d) determining whether said keystroke is a response;  
10 (e) determining response-type of said response as correct or incorrect;  
11 (f) determining time of said response;  
12 (e) storing said response, said response-type, and time of said response in DNE  
13 memory.

1 16. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein measuring a first cognitive performance of said  
3 examinee comprises the steps of:  
4 (a) determining and displaying appropriate messages to examinee;  
5 (b) determining whether an error message is to be displayed and displaying said error  
6 message;  
7 (c) determining whether an error cluster has occurred and displaying an appropriate  
8 message;  
9 (d) determining whether the end of a challenge-response series has been reached and  
10 providing summary information to said examinee.

1 17. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein said summary information comprises information  
3 related to examinee's cognitive performance, and said information retrieved from DNE  
4 memory.

1 18 A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein said general and motivational instructions include  
3 session administration instructions, examinee finger placement instructions, and examinee  
4 alternative finger placement instructions.

1 19. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein said motivational instructions include dietary  
3 instructions.

1 20 A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein calibration of said DNE is performed during the  
3 delay prior to presentation of each said challenge signal.

1 21. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device measures the accuracy  
3 with which the passage of time is measured by any method of calibration.

1 22. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device calibrates itself again and  
3 again, before each and every response keystroke, to detect even transient fluctuations in  
4 measurement accuracy during testing.

1 23. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a relatively high (e.g.,  
3 10%) cutoff for the maximum acceptable error with which the time required to complete a  
4 standard set of operations is measured, and a test that the average timing for a set of calibration  
5 results not vary by more than a lower bound and wherein said set of results comprises 20  
6 responses.

1 24. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 23, wherein said lower bound is 2%.

1 25. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a 10% cutoff for the  
3 maximum acceptable error with which the time required to complete a standard set of operations  
4 is measured.

1 26. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein users are asked to maintain an error rate above a minimum AND

3 below a maximum and thereby to control the response speed/accuracy tradeoff more precisely  
4 than if either limit were omitted.

1 27. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically calculates  
3 within-series and between-series averages, split-half reliabilities, standard deviations and error  
4 rates after each series of responses and at least several times during each measurement session, to  
5 help keep variation within acceptable limits.

1 28. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device provides statistical  
3 feedback of any kind during and after each series of responses and at least several times during  
4 each measurement session, to help keep variation within acceptable limits.

1 29. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device generates automatic  
3 interruptions, within each series of 3 to 10 responses, that stop data collection and warn the user  
4 immediately if their response error rate is too high or too low or if computer measurement  
5 accuracy is not within acceptable limits.

1 30. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically compares  
3 previously-determined performance with present performance, several times during each  
4 measurement session, to allow individuals to equal or improve upon previous response speeds  
5 while keeping error rates approximately constant.

1 31. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically graphs  
3 current results together with previously-obtained results several times during each measurement



4 session so that users can "try harder" if their present results do not match their prior results,  
5 keeping error rates approximately constant.

1 32. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically computes  
3 statistical confidence limits for changes in response time between most recent and previous  
4 measurement sessions, and displays the results of confidence calculations several times during  
5 each measurement session, encouraging individuals to try a bit harder if they are not achieving  
6 expected response speeds.

1 33. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically displays  
3 warnings concerning driving safety and possible adverse drug events based on a comparison  
4 between present and previous results.

1 34. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein the computer or other electronic device automatically  
3 re-calculates and continuously displays running averages and also error rates or error totals after  
4 each response within each series of responses.

1 35. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability of  
3 repeated signals (numbers or other response triggers) without preventing them entirely.

1 36. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability of  
3 obvious signal patterns without preventing them entirely.

1 37. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability of  
3 memorable patterns without preventing them entirely.

1 38. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability of  
3 any signal of a set of possible signals is chosen more frequently than other signals without ever  
4 preventing the selection of any signal entirely.

1 39. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability of  
3 any signal pattern (e.g. an increase by 1, or a shift from left to right hand or finger for the correct  
4 response) of a set of possible signal patterns that is chosen more frequently than other signal  
5 patterns without ever preventing the selection of any signal pattern entirely.

1 40. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device reduces the probability  
3 that a short, intermediate or long delay is selected before signal presentation without ever  
4 entirely preventing the selection of a short, intermediate or long delay.

1 41. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device interprets certain  
3 responses within a short series of responses as commands to execute optional operations.

1 42. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device examines the statistical  
3 properties of baseline data and notifies users when their baseline results are sufficient for  
4 detection of future 1%, 3% and 6% changes (or any other percent change) in response time and  
5 displays expected levels of confidence if each amount of change occurs subsequently.

1 43. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically evaluates  
3 and e-mails data that include response time or memory increases or decreases which are  
4 statistically significant according to a statistical test.

1 44. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device provides previous and  
3 current data in a format that can be imported in databases like Excel.

1 45. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically compares  
3 the latest single series of results with the previous series and notifies users of any change larger  
4 than a predetermined cutoff.

1 46. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically compares  
3 the latest several series results with the previous several series and notifies users of any change  
4 larger than a predetermined cutoff.

1 47. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes only the  
3 following two tests: choice response time (during which users choose the correct response and  
4 execute it as rapidly as possible) and list recall (during which users recall a list of numbers or  
5 words).

1 48. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes only the  
3 following three tests: choice response time, number list recall and word list recall.

- 1 49. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes a word list recall  
3 test during which words are presented in pairs to facilitate formation semantic associations  
4 between the words within each pair.
- 1 50. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes a word list recall  
3 test involving solely words containing equal numbers of letters that are matched for familiarity  
4 and concreteness.
- 1 51. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes a word list recall  
3 test involving solely words containing 4 letters that are matched for familiarity and concreteness.
- 1 52. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device operates over the Internet  
3 and provides a graph of data acquired during previous measurement sessions.
- 1 53. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device saves individual response  
3 times along with computer calibration results obtained just prior to each response.
- 1 54. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device provides breaks every 10  
3 seconds to reduce the effects of short-term fatigue.
- 1 55. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device using a keyboard for  
3 capturing responses has a version that allows any key to be pressed, for people who cannot press  
4 a particular key.

1 56. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a version that  
3 automatically presents signals after computer power is turned on, and requires only responses to  
4 signals and no other keystrokes.

1 57. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically removes  
3 high and low response times and computes series averages several times within each  
4 measurement system, so that feedback to the user and within-session and between-session  
5 statistical evaluation are more accurate because "outlier" results have been removed.

1 58. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically computes  
3 and presents to the user split half averages of any kind.

1 59. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically computes  
3 and presents to the user split half averages of any kind several times during each measurement  
4 session.

1 60. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically warns users  
3 that additional data should be collected if the most recent set of results is unacceptable by any  
4 statistical criterion or criteria.

1 61. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically warns users  
3 that additional data should be collected if the most recent set of present and past results is  
4 unacceptable by any criterion or criteria.

1 62. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically gives users  
3 a "pat on the back for good work" if either the most recent set of present and past or the present  
4 set of results is acceptable by any criterion or criteria.

1 63. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically gives users  
3 messages concerning how to improve data quality if either the most recent set of present and past  
4 or the present set of results is unacceptable or only borderline-acceptable by any criterion or  
5 criteria.

1 64. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results in conjunction with a code name and/or password, for storage and retrieval with the code  
4 name and/or password.

1 65. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results together with time-date information and measurement-accuracy-calibration data, for  
4 storage and retrieval with the code name and/or password.

1 66. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and corresponding measurement-accuracy-calibration data.

1 67. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and corresponding health and health factor data (where health factor is any factor or  
4 circumstance that may affect health).

1 68. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and corresponding food consumption data.

1 69. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and corresponding medicine consumption data.

1 70. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and corresponding health supplement consumption data.

1 71. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores individual  
3 performance results and corresponding health supplement consumption and medicine  
4 consumption and food consumption and health data.

1 72. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results for a series of responses, together with corresponding heart rate data.

1 73. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results for a series of responses, together with corresponding body temperature data.

1 74. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results for a series of responses, together with corresponding heart rate and body temperature  
4 data.

1 75. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results for a series of responses, together with corresponding heart rate, body temperature, health  
4 supplement consumption, medicine consumption, food consumption and health data.

1 76. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes algorithms for  
3 assigning improvement or decrement (benefit or potential harm) ratings for each food, medicine,  
4 supplement or other health habit as a result of performance improvements or decrements  
5 observed afterward.

1 77. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes neural  
3 algorithms for assigning improvement or decrement (benefit or potential harm) ratings for each  
4 food, medicine, supplement or other health habit as a result of performance improvements or  
5 decrements observed afterward, where neural refers to algorithms that are similar to or analogous  
6 to those that might be carried out by nerve cells.

1 78. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device obtains performance and  
3 health factor data (including medicines, supplements, foods and other factors that may affect  
4 health) together with the precise time-date information required for subsequent analysis with  
5 neural algorithms for assigning improvement or decrement (benefit or potential harm) ratings for  
6 each food, medicine, supplement or other health habit as a result of performance improvements  
7 or decrements observed afterward.

1 79. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device stores performance  
3 results and time-date information and/or measurement-accuracy-calibration data and/or health



4 data in a javascript cookie in conjunction with a code name and/or password, for storage and  
5 retrieval with the code name and/or password without transmission over the Internet.

1 80. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically reports that  
3 the cookie storage is being reached and requests that a backup copy of stored results and  
4 associated information be made before the cookie is erased.

1 81. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has an option to begin to  
3 display signals and capture responses automatically after power is turned on, thereby allowing  
4 people to use the measurement system even if they cannot read or follow program start-up  
5 instructions.

1 82. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a combined  
3 automatic start up and "no choice" mode that allows any key to be pressed, thereby allowing  
4 people to use the measurement system even if they cannot reliably read or distinguish characters  
5 or symbols or press an individual keyboard key.

1 83. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has two different sets of  
3 alternative keys that can be pressed in place of the number keys 1, 2, 3 and 4 (or 1 and 2, or 1, 2  
4 and 3) that trigger correct responses so that (1) users can rest their hands on the counter without  
5 accidentally pressing other keys on the keyboard and so that (2) users with very large hands and  
6 fingers can comfortably place their fingers on correct response keys without squeezing their  
7 fingers together and impairing their performance as a result.

1 84. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device allows people to choose

3 between versions that require no choice or a choice between two signals or a choice between  
4 three signals or a choice between four signals, so that their response rates for each mode can  
5 readily be evaluated and compared.

1 85. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device allows users to choose  
3 between fixed and variable delays before each signal is presented.

1 86. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device allows users to set the  
3 fixed delay according to their preferences.

1 87. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device employs more than four  
3 different signal display areas to map locations within retinal or cortical visual fields or  
4 connecting nerve pathways where signal processing is slower or less accurate than elsewhere.

1 88. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device employs keystroke  
3 capture algorithms to enable more rapid and precise comparison of responses involving different  
4 fingers and different hands. (Existing Internet systems are limited to mouse-click responses.)

1 89. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device employs image caching  
3 algorithms and image source exchange to enable essentially instant display of a variety of  
4 different visual signals transmitted over the Internet.

1 90. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device RSMMS employs sound

3 file caching algorithms to enable essentially instant presentation of a variety of different sound  
4 signals transmitted over the Internet.

1 91. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device provides a warning if a  
3 maximum number (e.g. 100) of responses have been made, to prevent fatigue during any single  
4 measurement session.

1 92. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device administers a choice  
3 response time measurement system with a minimum delay solely to allow time for computer  
4 time measurement accuracy determination (computer "calibration") just before each response is  
5 measured.

1 93. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a function that  
3 automatically searches through previous results to determine whether the most recent are  
4 significantly higher or lower at the 95% or any other confidence level, using a t-test or any other  
5 statistical test to compute confidence levels for each pair of data evaluated.

1 94. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has e-mail address  
3 storage and automatic retrieval so that reports of all previous results can be e-mailed to a  
4 physician, pharmacist or other health advisor, or to the user or anyone else, with a single click.

1 95. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a code name AND  
3 password system that allows different users to recall only their previous data.

1 96. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has data cache ("cookie")  
3 management functions that allow raw data to be viewed, copied and erased directly from the  
4 measurement page.

1 97. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a data cache warning  
3 when stored data is about to exceed maximum permitted size.

1 98. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has several different  
3 (Internet and also non-Internet) means for data storage, in case one or more are temporarily  
4 unavailable.

1 99. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device allows users to control  
3 the number of signals in each series or the length of the delay before each signal, or to shift with  
4 one or two clicks between the following modes of measurement: no choice, 2-choice, 3-choice,  
5 number signals or sound signals, continuous signal display or display one signal at a time,  
6 automatic graphing or no graph after each set of 20 responses.

1 100. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically warns users  
3 that they are significantly slower than their previous running average and should be extra  
4 cautious when driving and/or consult a physician or pharmacist to determine if their slow-down  
5 should be remedied in any way.

1 101. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has a health rating entry  
3 or entries and sharpness/alertness rating entry and food/supplement/medicine entry box that

4 allows the relationship between self-perceived sharpness and health and response time to be  
5 tracked during each measurement session.

1 102. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device has heart rate and body  
3 temperature timing functions that allow heart rate and temperature measurements to be timed, so  
4 that the relationship between these key indicators of physiologic status and response time and  
5 memory can be monitored.

1 103. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device automatically backs up  
3 cached data at the start of each measurement session.

1 104. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device assigns a score equal to  
3 the number of digits or words correctly recalled three times in succession.

1 105. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device assigns a score equal to  
3 the number of digits or words correctly recalled four times in succession.

1 106. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes just a choice  
3 reaction time test, number recall test and word list recall test.

1 107. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes rest periods of  
3 from about 7 to about 15 seconds during which results of a series of responses are displayed.

1 108. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes a display of the  
3 average response time for the current series of responses that is updated after every keystroke.

1 109. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes three alternate  
3 finger positions to allow more comfortable use of keyboards even if fingers are too wide to  
4 remain directly over adjacent keys or if fingers are most comfortably placed over adjacent keys  
5 while the base of the hand is resting on the keyboard support surface.

1 110. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes software for  
3 recall of number or word or other lists.

1 111. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes within one  
3 displayed page options to switch between two-choice, three-choice, four-choice and no choice  
4 response time tests and thereby save download time.

1 112. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device includes within one  
3 displayed page options to switch between word list recall and fill in the missing word in each  
4 pair memory and thereby save download time.

1 113. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein the computer or other electronic device includes  
3 regular collection of health factor, time-date and dose information in connection with  
4 performance measurement and then automatic calculation of a benefit-decrement value for each  
5 health factor.

1 114. A computer based method for testing the cognitive performance of at least one  
2 examinee, according to claim 12, wherein the computer or other electronic device presents only  
3 two tests - a response speed test and a memory or recall test - where both tests involve time  
4 measurements on computers or devices that are checked for time-measurement errors (i.e.,  
5 calibrated) using the same calibration algorithm.

1 115. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device presents just two tests - a  
3 response speed test and a memory or recall test - where users are instructed to maintain error  
4 rates between minimum and maximum levels, and are also instructed to measure their recall skill  
5 by obtaining two or more correct responses in a row at each level of difficulty.

1 116. A computer based method for testing the cognitive performance of at least one examinee,  
2 according to claim 12, wherein the computer or other electronic device presents just two tests - a  
3 response speed test and a memory or recall test - where users are instructed to maintain error  
4 rates between minimum and maximum levels, and are also instructed to measure their recall skill  
5 by obtaining three or more correct responses in a row at each level of difficulty.